

CLAIMS:

1. A method of detecting and using hanging wire pixels in a digital image, having pixels comprising:

(a) identifying pixels from the digital color image representing one or more sky regions;

(b) detecting pixels representing hanging wire regions in the sky regions; and

(c) using the detected hanging wire pixels to determine the orientation of the digital image or to replace such hanging wire pixels.

2. A method of improving a digital color image having pixels, the method comprising:

(a) identifying pixels from the digital color image representing one or more sky regions;

(b) detecting sky occlusion regions by examining the sky regions;

(c) developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color; and

(d) using the model to operate on the digital color image to replace the values of pixels from the sky occlusion regions with values predicted by the model.

3. The method of claim 2 wherein the model is a two-dimensional polynomial of the pixel position in the digital color image.

4. The method of claim 3 wherein the polynomial is a second-order polynomial.

5. The method of claim 2 wherein the step of identifying an initial sky region further comprises:

(i) identifying pixels from the digital color image representing an initial sky region;

(ii) developing a model based on the identified sky pixels,
wherein such model is a mathematical function that has inputs of pixel
position and outputs of color; and

5 (iii) and using the model to operate on the digital color image to
classify additional pixels not included in the initial sky region as sky.

6. The method of claim 2 further including determining when
sky occlusion regions are formed by hanging wires and determining the orientation
of the image based on the detected hanging wire regions.

7. A method of determining the orientation of a digital color
10 image having pixels, the method comprising:

(a) identifying pixels from the digital color image representing
one or more sky regions;

(b) detecting one or more hanging wire regions by examining
the sky regions; and

15 (c) analyzing the hanging wire regions to determine the
orientation of the digital color image.

8. The method of claim 7 wherein analyzing the hanging wire
regions further comprises:

determining the direction of gravity by examining the location of
20 pixels of the hanging wire region with respect to the endpoints of the hanging wire
region.

9. A method of removing hanging wire region pixels from
detected sky regions in a digital color image having pixels, the method
comprising:

25 (a) identifying pixels from the digital color image representing
one or more sky regions;

(b) detecting hanging wire regions by examining the sky
regions;

(c) developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color; and

(d) using the model to operate on the digital color image to
5 replace the values of digital color image pixels associated with the hanging wire regions with values predicted by the model to thereby remove the hanging wire region pixels.